

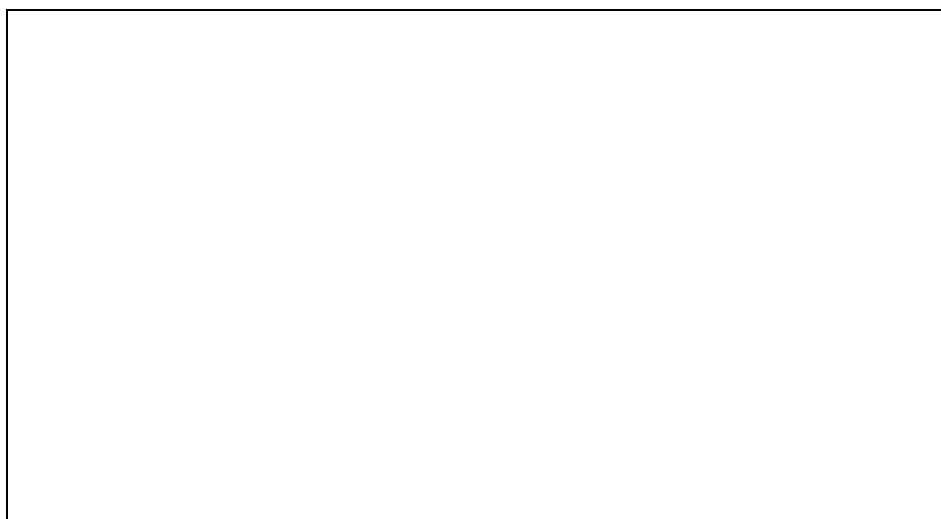


**50R-4SB**



**50RHR, 50RVR  
HIGH EFFICIENCY  
WATER SOURCE HEAT PUMPS  
1/2 to 5 NOMINAL TONS**

- PERFORMANCE DATA**
- DIMENSION PRINTS**



|                                |             |  |             |              |
|--------------------------------|-------------|--|-------------|--------------|
| Date:                          | Supersedes: | <b>50RHR,50RVR<br/>HIGH EFFICIENCY<br/>WATER SOURCE HEAT PUMPS</b> | 50RHR,50RVR | Rev:<br>-4SB |
| JOB NAME:                      |             | LOCATION:  |             |              |
| BUYER:                         |             | BUYER P.O. #   | CARRIER #   |              |
| UNIT NUMBER:                   |             | MODEL NUMBER:  |             |              |
| PERFORMANCE DATA CERTIFIED BY: |             |  | DATE:       |              |

### DESCRIPTION

Carrier's Aquazone single-packaged horizontal and vertical water source heat pumps provide the optimum balance between maintaining occupant comfort conditions, high product quality, and low energy utilization. The flexible water source heat pump design is user friendly to both system designers and service personnel.

Aquazone horizontal and vertical water source heat pumps are designed for quality and high performance over a lifetime of operation. The 50RHR,RVR high efficiency models offer cooling EERs (Energy Efficiency Ratios) to 13.3 and heating COPs to 4.6. Efficiencies stated are in accordance with standard conditions under ISO (International Organization for Standardization) Standard 13256-1 and provide among the highest ratings in the industry, exceeding ASHRAE (American Society of Heating, Refrigeration and Air Conditioning Engineers) 90.1 Energy Standards.

All units are manufactured to meet extensive quality control protocol from start to finish through an automated control system, which provides continuous monitoring of each unit and performs quality control checks as equipment progresses through the production process.

### STANDARD UNIT FEATURES

- Corrosion protected, heavy gage galvanized sheet metal lined with 1/2 in. thick, 1 1/2 lb. acoustic type insulation.
- Compressor isolating springs are specially selected for each compressor size.
- Permanent split capacitor (PSC) three-speed blowers.
- Blower motors operate at lower temperatures.
- Sealed refrigerant circuit provided with a standard thermostatic expansion valve (TXV) include a rotary, reciprocating, or scroll compressor.
- Reversing valve (4-way valve).
- Water-to-refrigerant coaxial (tube in tube) coil.
- Enhanced aluminum fin/rifled copper tube air-to-refrigerant heat exchanger coil.
- Fan motor insulation and compressor springs for sound isolation.
- Low speed blowers are utilized for quiet operation through reduced outlet air velocities.
- Four airflow configurations for horizontal units.
- Horizontal units are field convertible from left or right discharge to back discharge.
- Three airflow patterns for vertical units with right or left return.
- Extended water temperature range between 20 F and 110 F.
- Water flow rates as low as 1.5 gpm per ton.
- High-pressure switch.
- Low-pressure sensor to detect loss of refrigerant.
- Low air temperature sensor to safeguard against freezing.
- Water loop temperature monitoring.
- Voltage protection.
- Water coil freeze protection.
- Standard electronic condensate overflow shutdown.
- All units are pre-wired and factory charged with refrigerant.
- Horizontal units are provided with factory-installed hanger isolation brackets.
- Vertical units are provided with an internally trapped condensate drain to reduce labor associated with installing an external trap for each unit.
- Water connections (FPT) and condensate drains (FPT) are anchored securely to the unit cabinet.
- Complete C solid-state control system provides control of unit compressor, reversing valve, fan, safety features, and trouble-shooting fault indication features.

CUT ALONG DOTTED LINE

**PERFORMANCE DATA****UNIT**

Operating Weight \_\_\_\_\_ lbs

Shipping Weight \_\_\_\_\_ lbs

**COOLING**

Total Capacity \_\_\_\_\_ Btuh

Sensible Capacity \_\_\_\_\_ Btuh

Unit CFM \_\_\_\_\_

Total Heat of Rejection \_\_\_\_\_ Btuh

Entering Water Temperature \_\_\_\_\_ °F

GPM \_\_\_\_\_

Water Pressure Drop \_\_\_\_\_ ft wg

Unit Power Input \_\_\_\_\_ kW

**HEATING**

Total Capacity \_\_\_\_\_ Btuh

Unit CFM \_\_\_\_\_

Total Heat of Absorption \_\_\_\_\_ Btuh

Entering Water Temperature \_\_\_\_\_ °F

GPM \_\_\_\_\_

Water Pressure Drop \_\_\_\_\_ ft wg

Unit Power Input \_\_\_\_\_ kW

**ELECTRICAL DATA**

Power Supply to Unit \_\_\_\_\_ Volts \_\_\_\_\_ Phase \_\_\_\_\_ Hz

Minimum Circuit Amps \_\_\_\_\_ Maximum Fuse Amps \_\_\_\_\_

**COMPLETE C CONTROL FEATURES**

- Anti-short cycle timer
- Random start delay
- Condensate overflow protection
- High and low pressure refrigerant protection
- High and low voltage protection
- Automatic intelligent reset
- Accessory output
- Performance monitor (PM)
- Water coil freeze protection
- Air coil freeze protection
- Service Test mode with LED
- Alarm relay setting

**FACTORY-INSTALLED OPTIONS**

- |  |   |
|--|---|
| <input type="checkbox"/> Cupronickel Heat Exchangers                         | <input type="checkbox"/> PremierLink™ Control                 |
| <input type="checkbox"/> Sound Attenuation Package (Mute Package)            | <input type="checkbox"/> Autoflow Regulator (2.5 gpm per ton) |
| <input type="checkbox"/> Extended Range Operation (20 to 110 F)              | <input type="checkbox"/> Autoflow Regulator (3.0 gpm per ton) |
| <input type="checkbox"/> High Static Blower (Size 048 Only)                  | <input type="checkbox"/> Two-Way Control Valve                |
| <input type="checkbox"/> Deluxe D Control System<br>(with 78 VA transformer) |   |

**FIELD-INSTALLED ACCESSORIES**

- |  |   |
|--|---|
| <input type="checkbox"/> Hose Kit Assembly     | <input type="checkbox"/> Filter Rack (2 in.)    |
| <input type="checkbox"/> Ball Valves           | <input type="checkbox"/> Supply/Return Hose Kit |
| <input type="checkbox"/> Y Strainers           | <input type="checkbox"/> _____                  |
| <input type="checkbox"/> Solenoid Valves       | <input type="checkbox"/> _____                  |
| <input type="checkbox"/> Aquazone™ Thermostats | <input type="checkbox"/> _____                  |
| <input type="checkbox"/> Loop Controller       | <input type="checkbox"/> _____                  |

CUT ALONG DOTTED LINE

# DIMENSION PRINT

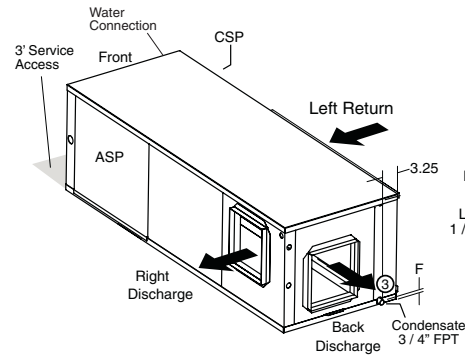
## 50RHR006-060 UNITS

| 50RHR UNITS | OVERALL CABINET     |               |              | WATER CONNECTIONS |             |                 |                | ELECTRICAL KNOCKOUTS (in.) |                  |                  | DISCHARGE CONNECTION<br>Duct Flange Installed (±0.10 in.) |             |                    |                   |             |            | RETURN CONNECTION<br>Using Return Air Opening |                    |            |            |
|-------------|---------------------|---------------|--------------|-------------------|-------------|-----------------|----------------|----------------------------|------------------|------------------|---|-------------|--------------------|-------------------|-------------|------------|---|--------------------|------------|------------|
|             |                     |               |              | 1                 | 2           | 3               | Loop Water FPT | G<br>1/2 conduit           | H<br>1/2 conduit | I<br>3/4 conduit |   |             |                    |                   |             |            |   |                    |            |            |
|             | A<br>Width          | B<br>Depth    | C<br>Height  | D<br>In           | E<br>Out    | F<br>Condensate |                | Low Voltage                | Ext Pump         | Power Supply     | J   | K           | L<br>Supply Height | M<br>Supply Depth | N           | O          | P<br>Return Depth                             | Q<br>Return Height | R          | S          |
| 006-012     | in.<br>22.4<br>56.8 | 43.1<br>109.5 | 11.3<br>28.7 | 2.4<br>6.1        | 5.4<br>13.7 | 0.6<br>1.5      | 1/2            | 3.5<br>8.9                 | 5.5<br>14.0      | 8.2<br>20.8      | 5.8<br>14.7   | 4.0<br>10.2 | 5.8<br>14.7        | 8.0<br>20.3       | 5.8<br>14.7 | 1.5<br>3.8 | 17.1<br>43.4                                  | 9.3<br>23.6        | 2.2<br>5.6 | 1.0<br>2.5 |
| 015-024     | in.<br>22.4<br>56.8 | 43.1<br>109.5 | 17.3<br>43.9 | 2.4<br>6.1        | 4.9<br>12.4 | 0.6<br>1.5      | 3/4            | 3.5<br>8.9                 | 7.5<br>19.1      | 10.2<br>25.9     | 5.0<br>12.7   | 5.6<br>14.2 | 10.4<br>26.4       | 9.3<br>23.6       | 5.0<br>12.7 | 1.5<br>3.8 | 17.1<br>43.4                                  | 15.3<br>38.9       | 2.2<br>5.6 | 1.0<br>2.5 |
| 030         | in.<br>22.4<br>56.8 | 53.2<br>135.1 | 19.3<br>49.0 | 2.4<br>6.1        | 5.4<br>13.7 | 0.6<br>1.5      | 3/4            | 5.7<br>14.5                | 9.7<br>24.6      | 12.2<br>31.0     | 5.0<br>12.7   | 6.8<br>17.3 | 10.4<br>26.4       | 9.3<br>23.6       | 5.0<br>12.7 | 2.1<br>5.3 | 23.1<br>58.7                                  | 17.3<br>43.9       | 2.2<br>5.6 | 1.0<br>2.5 |
| 036         | in.<br>22.4<br>56.8 | 53.2<br>135.1 | 19.3<br>49.0 | 2.4<br>6.1        | 5.4<br>13.7 | 0.6<br>1.5      | 3/4            | 5.7<br>14.5                | 9.7<br>24.6      | 12.2<br>31.0     | 2.9<br>7.4  | 3.8<br>9.7  | 13.5<br>34.3       | 13.1<br>33.3      | 2.9<br>7.4  | 1.9<br>4.8 | 23.1<br>58.7                                  | 17.3<br>43.9       | 2.2<br>5.6 | 1.0<br>2.5 |
| 042-048     | in.<br>22.4<br>56.8 | 62.2<br>158.0 | 19.3<br>49.0 | 2.4<br>6.1        | 5.4<br>13.7 | 0.6<br>1.5      | 1              | 5.7<br>14.5                | 9.7<br>24.6      | 12.2<br>31.0     | 2.9<br>7.4  | 3.8<br>9.7  | 13.5<br>34.3       | 13.1<br>33.3      | 2.9<br>7.4  | 1.9<br>4.8 | 32.1<br>81.5                                  | 17.3<br>43.9       | 2.2<br>5.6 | 1.0<br>2.5 |
| 060         | in.<br>25.4<br>64.5 | 71.2<br>180.8 | 21.3<br>54.1 | 2.4<br>6.1        | 5.4<br>13.7 | 0.6<br>1.5      | 1              | 8.1<br>20.6                | 11.7<br>29.7     | 14.2<br>36.1     | 5.8<br>14.7   | 5.0<br>12.7 | 13.6<br>34.5       | 13.3<br>33.8      | 5.8<br>14.7 | 2.9<br>7.4 | 36.1<br>91.7                                  | 19.3<br>49.0       | 2.2<br>5.6 | 1.0<br>2.5 |

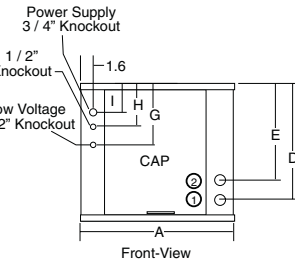
### NOTES:

- Condensate is 3/4-in. FPT copper.
- Horizontal unit shipped with filter bracket only. This bracket should be removed for return duct connection.
- Hanger kit is factory installed. Isolation grommets are provided.
- Right and left orientation is determined by looking at water connection side.

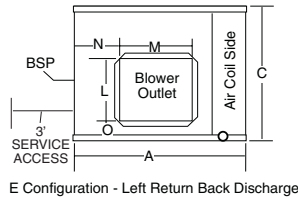
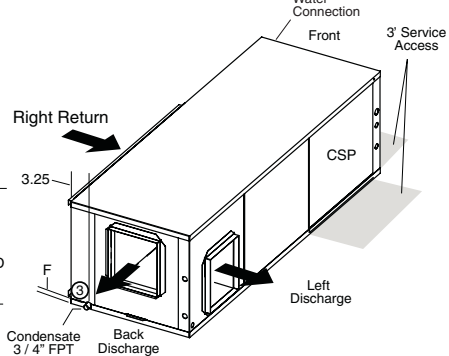
### LEFT RETURN



CAP=Control Access Panel  
CSP=Compressor Service Panel  
BSP=Blower Service Panel  
ASP=Alternate Service Panel

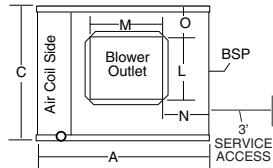


### RIGHT RETURN

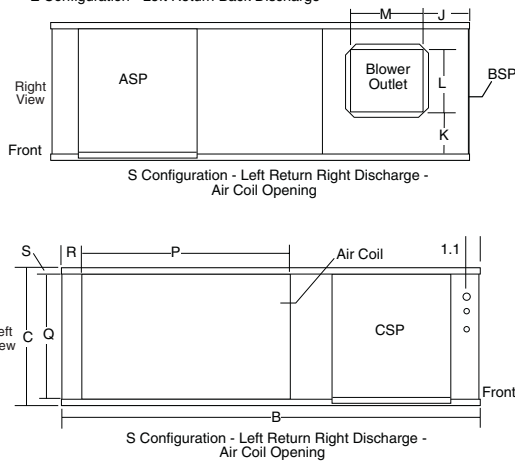


E Configuration - Left Return Back Discharge

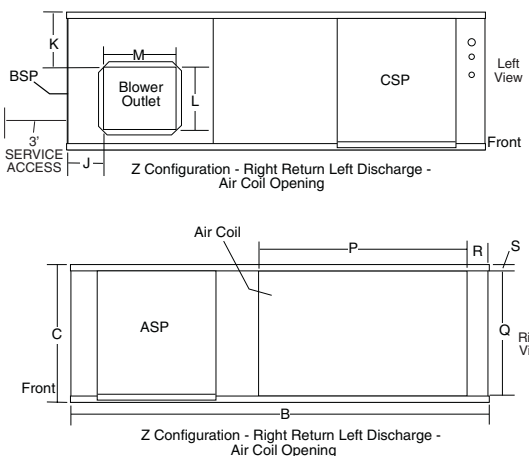
| Unit Hanger Detail |      |        |        |  |
|--------------------|------|--------|--------|--|
| Model              | X    | Y      | Z      |  |
| 006-024            | 43.1 | 24.375 | 20.375 |  |
| 030-036            | 53.1 | 24.375 | 20.375 |  |
| 042-048            | 62.1 | 24.375 | 20.375 |  |
| 060                | 71.1 | 27.375 | 23.375 |  |



B Configuration - Right Return Back Discharge



S Configuration - Left Return Right Discharge - Air Coil Opening



Z Configuration - Right Return Left Discharge - Air Coil Opening

| AIRFLOW CONFIGURATION |        |           |
|-----------------------|--------|-----------|
| Code                  | Return | Discharge |
| S                     | Left   | Right     |
| E                     | Left   | Back      |
| Z                     | Right  | Left      |
| B                     | Right  | Back      |

# DIMENSION PRINT

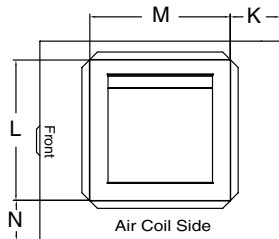
## 50RVR009-060 UNITS

| 50RVR<br>UNIT |           | OVERALL CABINET |              |               | WATER CONNECTIONS |             |                 |                      | ELECTRICAL KNOCKOUTS (in.) |                |                 | DISCHARGE CONNECTION<br>Duct Flange Installed (±0.10 in.) |             |                       |                      |             | RETURN CONNECTION<br>Using Air Coil Opening |                      |                       |            |
|---------------|-----------|-----------------|--------------|---------------|-------------------|-------------|-----------------|----------------------|----------------------------|----------------|-----------------|---|-------------|-----------------------|----------------------|-------------|---|----------------------|-----------------------|------------|
|               |           |                 |              |               | 1                 | 2           | 3               | Loop<br>Water<br>FPT | G<br>½ conduit             | H<br>½ conduit | I<br>¾ conduit  |   |             |                       |                      |             |   |                      |                       |            |
|               |           | A<br>Width      | B<br>Depth   | C<br>Height   | D<br>In           | E<br>Out    | F<br>Condensate |                      | Low<br>Voltage             | Ext Pump       | Power<br>Supply | J   | K           | L<br>Supply<br>Height | M<br>Supply<br>Depth | N           | O   | P<br>Return<br>Depth | Q<br>Return<br>Height | R          |
| 009-012       | in.<br>cm | 22.4<br>56.8    | 21.6<br>54.9 | 22.6<br>57.4  | 2.6<br>6.6        | 5.4<br>13.7 | 7.8<br>19.8     | 1/2                  | 3.5<br>8.9                 | 5.5<br>14.0    | 8.2<br>20.8     | 10.6<br>26.9  | 6.8<br>17.3 | 5.8<br>14.7           | 8.0<br>20.3          | 6.0<br>15.2 | 2.2<br>5.6                                  | 17.1<br>43.4         | 9.3<br>23.6           | 1.0<br>2.5 |
| 015-024       | in.<br>cm | 22.4<br>56.8    | 21.6<br>54.9 | 34.6<br>87.9  | 2.4<br>6.1        | 4.8<br>12.2 | 8.5<br>21.6     | ¾                    | 3.5<br>8.9                 | 7.5<br>19.1    | 10.2<br>25.9    | 7.2<br>18.3   | 3.8<br>9.7  | 14.0<br>35.6          | 14.0<br>35.6         | 4.3<br>10.9 | 2.2<br>5.6                                  | 17.1<br>43.4         | 15.3<br>38.9          | 1.0<br>2.5 |
| 030           | in.<br>cm | 22.4<br>56.8    | 25.6<br>65.1 | 40.6<br>103.1 | 2.4<br>6.1        | 5.4<br>13.7 | 9.7<br>24.6     | ¾                    | 5.7<br>14.5                | 9.7<br>24.6    | 12.2<br>31.0    | 7.2<br>18.3   | 5.8<br>14.7 | 14.0<br>35.6          | 14.0<br>35.6         | 4.3<br>10.9 | 2.2<br>5.6                                  | 21.1<br>53.6         | 19.2<br>48.8          | 1.0<br>2.5 |
| 036           | in.<br>cm | 22.4<br>56.8    | 25.6<br>65.1 | 40.6<br>103.1 | 2.4<br>6.1        | 5.4<br>13.7 | 9.7<br>24.6     | ¾                    | 5.7<br>14.5                | 9.7<br>24.6    | 12.2<br>31.0    | 7.2<br>18.3   | 5.8<br>14.7 | 14.0<br>35.6          | 14.0<br>35.6         | 4.3<br>10.9 | 2.2<br>5.6                                  | 21.1<br>53.6         | 19.2<br>48.8          | 1.0<br>2.5 |
| 042-048       | in.<br>cm | 22.4<br>56.8    | 25.6<br>65.1 | 48.6<br>123.4 | 2.4<br>6.1        | 5.4<br>13.7 | 9.7<br>24.6     | 1                    | 5.7<br>14.5                | 9.7<br>24.6    | 12.2<br>31.0    | 7.2<br>18.3   | 5.8<br>14.7 | 14.0<br>35.6          | 14.0<br>35.6         | 4.3<br>10.9 | 2.2<br>5.6                                  | 21.1<br>53.6         | 27.2<br>69.1          | 1.0<br>2.5 |
| 060           | in.<br>cm | 25.4<br>64.5    | 30.6<br>77.8 | 50.6<br>128.5 | 2.4<br>6.1        | 5.4<br>13.7 | 10.7<br>27.2    | 1                    | 8.1<br>20.6                | 11.7<br>29.7   | 14.2<br>36.1    | 6.2<br>15.7   | 6.3<br>16.0 | 18.0<br>45.7          | 18.0<br>45.7         | 5.1<br>13.0 | 2.2<br>5.6                                  | 26.1<br>66.3         | 27.2<br>69.1          | 1.0<br>2.5 |

### NOTES:

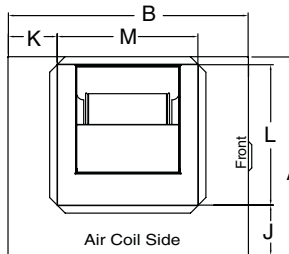
1. Condensate is 3/4-in. FPT and is switchable from side to front.
2. Vertical unit shipped with filter bracket only extending from unit 2.5 inches. This bracket should be removed when connecting return duct.
3. Discharge flange field installed.
4. Right and left orientation is determined by looking at water connection side.

### RIGHT RETURN

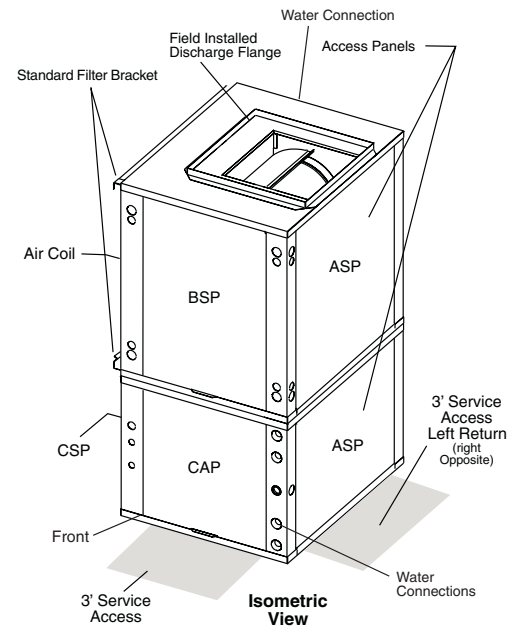


R Configuration - Top View-Right Return

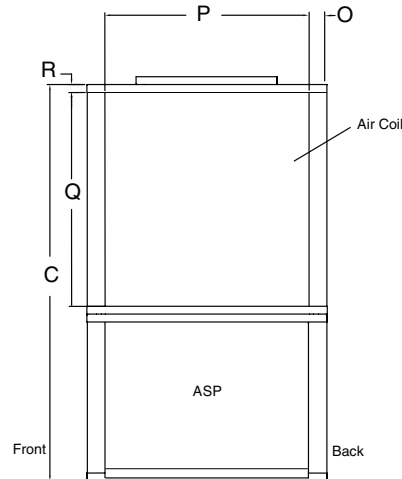
### LEFT RETURN



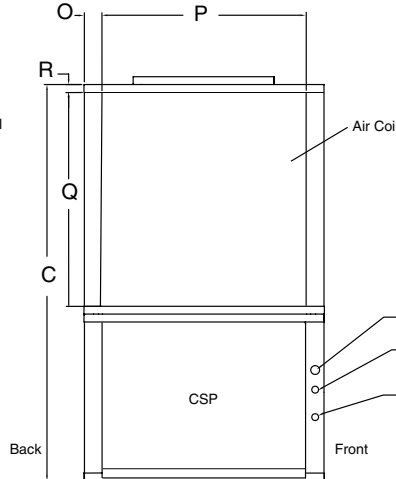
L Configuration - Top View-Left Return



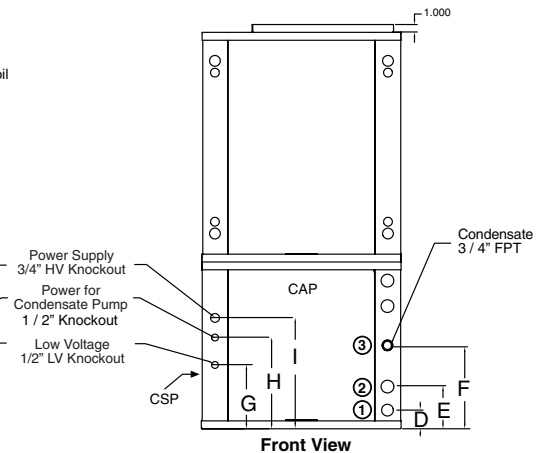
Isometric View



R Configuration - Right Return Right View - Air Coil Opening



L Configuration - Left Return Left View - Air Coil Opening



Front View

### AIRFLOW CONFIGURATION

| Code | Return | Discharge |
|------|--------|-----------|
| L    | Left   | Top       |
| R    | Right  | Top       |

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE





